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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/163 848 09/30/98 PEAIRS

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EXAMINER

TM02/0730

MICHAEL J. MALLIE
FLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
7TH FLOOR
LOS ANGELES CA 90025-1026

HUYNH, C
ART UNIT

PAPER NUMBER

2176
DATE MAILED:

07/30/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/163,848

Applicant(s)

PEAIRS ET AL.

Examiner

Cong-Lac Huynh

Art Unit

2176

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to communications: amendment filed on 6/14/01 to the application filed on 09/30/98.
2. Claims 1-32 are pending in the case. Claims 1, 9, 13, 19, 24, 29 are independent claims.
3. The rejections of claim 8 under 35 U.S.C. 112, second paragraph, as being indefinite have been withdrawn in view of the amendment.
4. The rejections of claims 1-5, 7, 9-11, 13-28 under 35 U.S.C. 103(a) as being unpatentable over Takano (5,983,246) in view of de Souza et al (5,848,418) have been withdrawn in view of the amendment.
5. The rejections of claims 1-5, 7, 9-11, 13-28 under 35 U.S.C. 103(a) as being unpatentable over Takano (5,983,246) and de Souza et al (5,848,418) and further in view of Iijima have been withdrawn in view of the amendment.
6. The rejections of claims 1-5, 7, 9-11, 13-28 under 35 U.S.C. 103(a) as being unpatentable over Takano (5,983,246) and de Souza et al (5,848,418) and further in view of Tim Ho et al. have been withdrawn in view of the amendment.
7. The rejections of claims 29-32 under 35 U.S.C. 103(a) as being unpatentable over Mahoney (5,889,886) have been withdrawn in view of the amendment.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102((e), f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1-5, 7, 9-11, 13-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takano (US Pat No. 5,983,246, 11/09/99, filed 2/13/98) in view of de Souza et al. (US Pat No. 5,848,418, 12/8/98, filed 9/29/95) and Sasaki et al. (US Pat No. 5,812,995, 9/22/98, filed 3/24/97).

Regarding independent claim 1, Takano discloses:

- analyzing textual *content* of a previously unclassified documents to determine a *textual profile of the electronic document* (col 1, lines 7-14; col 6, lines 21-40; content data can be text, images or sounds or all since it is multimedia data, col 8, lines 15-55)

Art Unit: 2176

- generating a classification of the document based on the *textual profiles* (col 3, lines 15-25; col 6, lines 21-40; col 8, lines 13-67)

Takano does not disclose analyzing graphical content of a document, determining a graphical profile of a document, and classifying documents based on the graphical profile.

De Souza discloses:

- analyzing textual and graphical properties of a document using text data and image data of the entire electronic document (each file includes text and graphics, col 1, lines 6-13; 24-28; *analyze all* or at least a portion of a file, col 2, lines 1-4, col 3, lines 65-67 to col 4, lines 10-13).
- classifying documents based on the textual and graphical content (col 1, lines 11-13; col 3, lines 65-67 to col 4, lines 1-33; col 5, lines 1-40)

Takano does not disclose storing the electronic document in a pre-existing *directory structure* based on the classification.

Sasaki discloses that feature (figures 1-2, 4; col 5, lines 12 to col 6, lines 1-47).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined Sasaki into Takano and de Souza to enhance the feature of storing classified documents systematically into a directory file system based on the document classification which is based on the textual profile and the graphical profile of a document as taught by Takano and de Souza for the convenience of searching and retrieving data later.

Regarding claims 2, 3, 7, which are dependent on claim 1, Takano and de Souza do not explicitly disclose that the *directory structure* comprises a hierarchy of documents mirroring in a similar fashion of the pre-existing memory.

Sasaki discloses generating a directory structure to store the classified documents (figures 1-2, 4; col 5, lines 12 to col 6, lines 1-47).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have included that feature to Sasaki since by copying the directory structure for storing the classified documents of Sasaki, one obtains a mirror directory in a similar fashion of the pre-existing directory.

Regarding claim 4, which is dependent on claim 1, Takano discloses:

- determining characteristic words of the document (col 8, lines 51-67)
- determining a frequency for each characteristic word (col 8, lines 51-67; col 9, lines 1-30)
- building a frequency table based on the frequency associated with each characteristic word (figure 6)

Independent claims 9 and 10 are for a machine-readable medium of the method of claims 1 and 4, and are rejected under the same rationale.

Regarding independent claim 13, as disclosed in claims 1 and 2 above, Takano discloses:

- analyzing documents in a pre-existing directory to determine a document classification profile of the pre-existing document directory structure (the document classification item is equivalent to a document classification profile of a multimedia document, col 6, lines 21-40)
- analyzing *textual content* of the electronic document to determine a *textual profile* of the electronic document (col 3, lines 15-40; col 6, lines 21-40; col 8, 15-55)

Takano does not disclose generating a *mirror directory* structure based on the pre-existing directory and placing a document in the *mirror directory* structure based on the organization of the pre-existing document directory structure.

Sasaki discloses:

- generating a directory structure (figure 1-2, 4; col 5, lines 12 to col 6, lines 1-47)
- placing the electronic document in the directory structure based on the document classification profile (figures 1 and 2)

Sasaki does not disclose that the directory structure for placing classified documents is a *mirror directory structure*, and said placing is based on the textual profile and the graphical profile of the document.

However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have included that feature into Sasaki since a mirror directory is generated by merely copying a directory structure, which is a pre-existing directory, formed before generating the mirror directory, as taught in Sasaki. Furthermore, since the directory structure is generated based on the *document classification* and *document attribute information file* (figure 2), it would have been obvious to one of ordinary skill in

the art at the time of the invention was made to have combined Sasaki into Takano to obtain the directory structure as well as a mirror directory structure for storing documents classified based on text and graphics features of documents.

Takano and Sasaki do not disclose analyzing graphical content of the electronic document using image data of the document.

Souza discloses analyzing graphical content of the electronic document using image data of the electronic document (each file includes text and graphics, col 1, lines 6-13; 24-28; *analyze all* or at least a portion of a file, col 2, lines 1-4, col 3, lines 65-67 to col 4, lines 10-13).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined de Souza into Takano and Sasaki to enhance classifying documents based on both text and graphics features of documents.

In addition, though Takano, Souza, and Sasaki do not disclose receiving a previously unclassified electronic document, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have recognized that receiving such unclassified electronic documents is implied in analyzing and classifying documents.

Regarding claim 14, which is dependent on claim 13, Takano discloses:

- generating a list of directories in the pre-existing document directory structure (col 1, lines 1-14, lines 24-50)
- examining files in the directories of the pre-existing document directory structure to determine content (col 2, lines 48-58)

- examining the content of the files to determine *the document classification profile* of the directories in the pre-existing document directory structure (a list of bibliographic items and the classification information storage section stores a list of classification items, col 1, lines 34-50; col 2, lines 48-55)

Takano does not explicitly disclose the recursively descending the pre-existing document directory structure. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have incorporated the recursively descending the pre-existing document directory structure into Takano. Since it was well-known in the art that the network directory is organized in hierarchy, one would have known to browse to analyze the directories in descending order recursively.

Regarding claim 16, which is dependent on claim 13, the same argument is applied as in claims 1 and 2 above. The pre-existing directory is organized in hierarchy, which shows the relationships among directories, and the generating of a mirror directory is carried out by copying the pre-existing directory. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have recognized that the copying will copy all features of the pre-existing directory to a mirror directory such as set of directories and relationships among them.

Regarding claims 17 and 18, Takano discloses the list of classification items which is equivalent to the document classification profile (col 1, lines 34-40; col 2, lines 48-55).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have recognized that whatever documents stored in either the primary directory or the secondary directory in the pre-existing directory will be stored in the equivalent directory of the mirror directory based on the *document classification profile* since the mirror directory is generated by copying from the pre-existing directory.

Claim 15, which is dependent on claim 13, includes the added limitations of claim 3, and is rejected under the same rationale.

Claims 19-23 are for the computer-readable medium of the method claims 13-14, 16-18, and are rejected under the same rationale.

Claims 24-28 are for an apparatus of claims 13-14, 16-18, and are rejected under the same rationale.

11. Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takano, de Souza, and Sasaki as applied to claim 1 above, and further in view of Iijima (US Pat No. 5,845,304, 12/1/98, filed 4/12/96).

Regarding claim 5, which is dependent on claim 5, Takano, de Souza, and Sasaki do not disclose the analyzing of graphical properties of an electronic document based on the point set and the density of points.

Iijima discloses:

- determining a point set corresponding to the electronic document (col 4, lines 36-65)
- determining a density of points within the point set (col 1, lines 59-67; col 2, lines 10-18)

Iijima does not disclose the generating of a document profile based on the density of points. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined Iijima into Takano and de Souza. Since Iijima teaches the point set and the density of point in an electronic document, it motivates to include the generating of such profile for an electronic document based on the density of point set information.

Claim 11 is a machine-readable medium for the method claim 5, and therefore is rejected under the same rationale.

12. Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takano, de Souza, and Sasaki as applied to claims 1 and 9 above, and further in view of Tim Ho et al. (*Decision Combination in Multiple Classifier*

Systems, IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 16, No. 1, January 1994).

Regarding claim 6, which is dependent on claim 1, Takano does not disclose that the generating of a classification of a document based on the textual and graphical properties comprises combining results from the textual and graphical analysis using a Borda Count.

Ho discloses the Borda Count Method in which the Borda Count is a generalization of the majority vote and the Borda Count for a class is the sum of the number of classes ranked below it by each classifier (page 68, part B).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have incorporated the assigning of points to classes and the sum of the points of Ho into Takano and de Souza since Takano and de Souza discloses the directories to store classified documents in different classes and different orders.

Claim 12 is a machine-readable medium for the method claim 9, and is rejected under the same rationale.

13. Claims 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mahoney (US Pat No. 5,889,886, 3/30/99, filed 11/28/95) in view of Sasaki et al. (US Pat No. 5,812,995, 9/22/98, filed 3/24/97).

Regarding independent claim 29 and dependent claim 30, Mahoney discloses:

- a document scanning device (figure 1A)
- a document storage device coupled to the document scanning device, wherein the document storage device is organized as document directory structure having multiple directories (figure 1A, figure 2, figure 3)
- a processor coupled to the document scanning device and to the document storage device, wherein the processor analyzes *the content* of a document scanned by the document scanning device to store the document in a memory (figure 1B)

Mahoney does not disclose determining a directory to store the classified documents.

Sasaki discloses automatically storing the classified documents in the directory system (figures 1-2, 4).

Mahoney and Sasaki do not disclose that the storage device has a mirror directory having multiple directories organized based on the document directory structure.

However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have included that feature Sasaki and combined Sasaki with Mahoney since the mirror directory is generated by merely copying the pre-existing directory.

In addition, Mahoney does not disclose storing of analyzed documents in the mirror directory corresponding to the pre-existing directory.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have recognized that by copying of the pre-existing directory, which

Art Unit: 2176

includes classified documents, the documents will be stored in corresponding directory equivalent to the pre-existing directory. In other words, the copied directory is a mirror directory.

Regarding claim 31, which is dependent on claim 29, Mahoney discloses that the processor analyzes files stored in the document directory structure to determine content and generates a *document classification profile* of the document directory structure based on the analysis (figure 1A, figure 2).

Regarding claim 32, Mahoney discloses that the document is analyzed based on image and textual content (col 1, lines 23-67; col 2, lines 1-6).

Response to Arguments

14. Applicant's arguments filed 6/14/01 have been fully considered but they are not persuasive.

Applicants argue that Takano discloses that the documents are classified based on their bibliographic items whereas the invention is directed to automatically classifying documents based on the textual profile and the graphical profile of the document. Examiner agrees.

However, the bibliographic items, according to Takano, are characteristic features of the content of a document, i.e., a set of *keywords* and *their frequency of appearance* in the document (col 8, lines 51-67). The bibliographic item, therefore, is considered

Art Unit: 2176

equivalent to a *textual profile* of a document since it includes the *textual description* of a document. Takano also teaches that the document classifying is carried out automatically (col 8, lines 27-42; col 3, lines 15-32).

Since the combination of Takano-de Souza-Sasaki discloses limitations of independent claims 1 and 9, those combinations with Tim Ho and with Iijima are appropriate.

Applicants further argue that Mahoney does not teach or suggest determining a directory in which the document scanned by the document scanning device should be placed, and automatically storing such document in the directory.

Examiner agrees.

Sasaki et al., cited in this office action, in combination with Mahoney, discloses that feature (figures 1-2, 4).

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bernzott et al. (US Pat No. 5,436,983, 7/25/95) teaches an optical character recognition method and apparatus.

Ozaki (US Pat No. 5,574,802, 11/12/96, filed 9/30/94) teaches a method and apparatus for document element classification by analysis of major white region geometry.

Art Unit: 2176

Revankar et al. (US Pat No. 5,767,978, 6/16/98) teaches an image segmentation system.

Bloomberg (US Pat No. 5,828,771, 10/27/98) teaches a method and article of manufacture for determining whether a scanned image is an original image or fax image.

Crabtree et al. (US Pat No. 5,937,084, 8/10/99, filed 5/22/96) teaches a knowledge-based document analysis system.

Vaezi et al. (US Pat No. 6,081,616, 6/27/00, filed 7/18/97) teaches a method and apparatus for character recognition.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cong-Lac Huynh whose telephone number is (703)-305-0432. The examiner can normally be reached on Monday through Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Herndon, can be reached on (703) 308-5186. The fax number to this Art Unit is (703) 308-9731.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Art Unit: 2176

Washington, D.C. 20231

Or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:


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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA. Sixth Floor (Receptionist).

clh

7/25/01


HEATHER R. HERNDON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100